

Patent claims

1. A method for the navigation of airplanes from port to port with the help of GPS signals, characterized in that the navigation is effected with an integrated FMS (Flight management system) and in a manner based on digital cards and position determination by way of GPS signals, which are corrected by means of GPS reference signals, wherein depending on the momentary position and movement condition of the airplane, the card on which in each case the movement is based is automatically selected from a library and displayed on a screen.
2. A method according to claim 1, characterized in that
  - 15 a) as long as the airplane is on the airfield standing or rolling, the correct airfield map is displayed on a screen and
  - b) during the departure procedure, the correct departure map is displayed on the screen and
  - 20 c) as long as the airplane is in enroute, the correct IFR, VFR or other maps are displayed on the screen and
  - d) for the approach, one switches over to the correct approach map, whereupon on landing one switches 25 automatically over to the correct airfield map.
3. A method according to claim 1, characterized in that for the approach, as an approach and landing help, a GNSS 3-D trace channel is displayed in the screen, wherein the trace channel is set by way of geographic data and is coupled to the approach map, wherein the trace channel is continuously 30

calculated by means of the differential-GPS data, and is displayed.

4. A method according to claim 3, characterized in that terrain data from a terrain data base are displayed in the representation of the trace channel.
5. A device for carrying out the method according to claim 1, characterized in that the device comprises a FMS (flight management system), a differential GPS receiver, a computer with navigation software, a data base with digital maps and at least one screen for displaying a map, and a number of entering keys.
10. A device according to claim 5, characterized in that another screen is available, on which different flight and navigation aids, such as IFR instruments, artificial horizon, engine instruments, may be represented and displayed.
15. A device according to claim 6, characterized in that the instruments to be displayed can be selected and be operated by means of buttons.
20. 8. A device according to claim 5, characterized in that there is available a digital library which comprises all maps necessary for all flights, airfield data, terrain data and data of further navigation aids.
25. 9. A device according to claim 8, characterized in that the digital library contains flight manuals, check lists and technical documents.
10. A device according to claim 5, characterized in that the navigation software is built up in modules and comprises a number program modules.